REMARKS

I. Status of the Application

Claims 28-31 are pending in the application. Claims 1-27 have been cancelled. In the office action dated April 22, 2004, the Examiner:

1) Provisionally rejected claims 28-31 under 35 U.S.C. §101 as claiming the same invention as that of claims 28-31 of co-pending Application No. 10/645,090;

2) Rejected claims 28, 30, and 31 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,524,581 to Palm (hereinafter "Palm");

3) Rejected claim 28 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 3,820,570 to Holzhuter (hereinafter "Holzhuter");

4) Rejected claim 28 under 35 U.S.C. §102(b) on the grounds that it is anticipated by U.S. Patent No. 4,344,404 to Child (hereinafter "Child");

5) Rejected claim 31 under 35 U.S.C. 103(a) as allegedly being unpatentably obvious over Holzhuter or Child.

6) Rejected claim 29 under 35 U.S.C. 103(a) as allegedly obvious in view of Palm.

In order to more precisely define the claimed invention, Applicant has amended claim 28. Applicant has also added new independent claim 32-34. Claim 28 has been amended to define the recited baffle as having a leading upstream edge tapered toward the housing, a wider trailing downstream edge, and an arcuate portion connecting the upstream and downstream edges. The baffle is placed at an angle in the housing so that the tapered edge is positioned to meet the fluid first, hence its designation as the leading upstream edge. Conversely, the wider edge is positioned away from the source of the fluid and is, therefore, trailing and downstream. This amendment to claim 28 is intended to correct an error in the upstream-downstream definition of the leading and trailing edges of the baffle, so that the claim language coincides with embodiment shown in Figures 2-5 of the application.

II. Provisional Double Patenting Rejection

Claims 28-31 were provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 28-31 of co-pending application No. 10/645,090. Applicant has amended these claims to recite a mixing dome that incorporates the previously claimed baffle into a positively recited housing. Thus, the claims of this application claim the combination of a housing and at least one baffle, while the claims of the co-pending application are directed only to the baffle. This modification to claims 28-31 should overcome the statutory double patenting rejection. Applicant will file a terminal disclaimer if an obviousness-type double patenting rejection is issued on these claims.

III. The Prior Art Rejections Should Be Withdrawn

The primary references Palm, Holzhuter, and Child were used to reject claims 28, 30 and 31 as anticipated, and claim 29 as obvious. For the reasons discussed below, none of these references, whether taken either alone or in combination, teach or suggest all of the limitations of claims 28-31, or new claim 32.

1. Palm

The patent to Palm was cited as disclosing a baffle for mixing comprising "a leading downstream edge seen in Figure 7 having an edge tapering into the housing 4, an upstream edge wider than the downstream edge, and an arcuate portion connecting the upstream and downstream edges. . .". (Office Action at pp. 2-3). It can first be noted that the wing-shaped mixing element in Palm does not include an edge tapering into the housing. As shown in Figures 1 and 2 of Palm, the element 1 includes a rounded upstream edge 2 that tapers to a thinner downstream edge 3. The mixing element 1 spans diametrically across the housing 4, as depicted in Figures 5 and 6. As also shown in Figure 6, the mixing element does not taper into or toward the housing to form the thinner downstream edge 3. Instead, the element tapers along the direction of flow through the housing. Thus, Palm fails to disclose an element recited in Applicant's claim 28, and therefore cannot anticipate.

In addition, it can bee seen that with Applicant's amendment to claim 28 to correct the upstream-downstream orientation, that claim 28 requires the wider edge to be positioned downstream. The Palm mixing element has its wider edge 2 upstream so that the wider edge meets the flow first. In contrast, in the present invention the tapered edge meets the fluid first and the wider edge is downstream from the fluid source. Because Palm fails to disclose this upstream-downstream arrangement of the tapered and wider edges, it cannot anticipate Applicant's claim 28.

Moreover, there is no motivation to modify the wing-shaped mixing element of Palm to meet the limitations of Applicant's claim 28. In order to meet Applicant's claim, the Palm wing would have to be dramatically changed from its configuration spanning the diameter of the housing to a configuration that blends into the interior surface of the housing. Thus, claim 28 is both novel and non-obvious in view of Palm, whether taken alone or in combination with any other art of record.

2. Holzhuter

The patent to Holzhuter was cited for its disclosure of guide vanes having "a leading downstream edge seen in Figure 1 having an edge tapering into the housing on the downstream end 3, an upstream edge near 2 wider than the downstream edge, and an arcuate portion connecting the upstream and downstream edges." (Office Action at p. 3). The Holzhuter reference discloses a section bend conduit that utilizes the guide vanes to direct fluid flow around a bend in the conduit. See col. 1, lines 15-24.

Applicant's definition in original claim 28 of a baffle for use in a mixing dome was disregarded as merely intended use. Applicant has amended claim 28 to now define a mixing dome for use in a thermostat, with the positively recited elements of a housing and the baffle structure originally defined in the claim. In addition, the body of the claim defines the housing as defining a mixing chamber in communication with hot and cold fluid inlets and the thermostat of the assembly. The definition of Applicant's invention as a mixing dome for use in a thermostatic control valve assembly in the preamble of claim 28 should not be ignored in order to draw in prior art not germane to the problem addressed by Applicant's invention. The body of the claim recites structure that pertains relates the mixing dome to the thermostatic control valve assembly, so this aspect of the

preamble cannot be ignored when ascertain what prior art is germane to the patentability of the claim.

The present invention is intended to solve the problem of complete mixing of hot and cold fluid in a thermostatic mixing valve assembly. Applicant's claimed mixing dome and baffle was developed to foster more complete fluid mixing than available with prior art devices. On the other hand, the Holzhuter device is simply concerned with helping to direct fluid flow through a bend in a conduit. The problem solved by Applicant's invention is very different, which helps highlight the non-trivial nature of the inventive mixing dome and baffle recited in claim 28. The Holzhuter reference is not within the art of thermostatic mixing valves, nor is it directed to problems or solutions that are in any way pertinent to the field of thermostatic mixing valves. Thus, Holzhuter should be disregarded as non-analogous art and the rejections in view of this reference should be withdrawn.

However, assuming that Holzhuter is still considered pertinent, it still fails to anticipate Applicant's claims for substantially the same reasons as given for the Palm reference. More specifically, Holzhuter does not disclose all of the limitations of claim 28 and should be withdrawn.

First, as with the Palm device, the curved guide vanes are positioned transversely across the width or diameter of the conduit. See, Figures 2 and 4. Thus, the tapered end of the guide vanes are directed downstream and are not tapered into or toward the housing, as required by Applicant's claim 28. Moreover, as shown in Figure 1 of Holzhuter, the wider edge of the vane is disposed toward the inlet portion 1 or at the upstream edge of the vane. The tapered edge is oriented downstream toward the outlet portion 3. By contrast, amended claim 28 recites that the upstream edge is the tapered and the downstream edge is the wider edge. As with the Palm reference, the guide vanes in Holzhuter fail to meet all of the limitations of Applicant's claim 28. Moreover, there is no motivation to make the radical structural changes necessary to the Holzhuter vanes to bring them within the scope of Applicant's claim 28. As explained, Holzhuter fails to affect the patentability of Applicant's claims 28-31, because it is non-analogous and/or because it fails to disclose or suggest each limitation of Applicant's claims. Thus, it is

respectfully submitted that the rejection of claim 28 and 31 in view of Holzhuter should be withdrawn.

3. Child

The patent to Child was cited for its disclosure of side walls in a rectangular housing that have "a leading downstream edge seen in Figure 4 having an edge tapering into the housing 27 on the downstream end 32A, an upstream edge near 59 wider than the downstream edge, and an arcuate portion connecting the upstream and downstream edges." (Office Action at p.3). As with the Holzhuter reference, the definition of Applicant's claimed baffle was ignored as merely intended use. Again, as explained above, it is improper to ignore the definition of Applicant's mixing dome with the housing and baffle simply to open up potential prior art.

The problem addressed by Applicant's invention is the complete mixing of hot and cold fluids within a mixing dome. The side walls in Child form a sonic nozzle to accelerate an air-fuel mixture into an internal combustion engine cylinder. A person of ordinary skill in the thermostatic fluid mixing art would not turn to the internal combustion engine art for a solution to a fluid mixing problem or to select a form of a mixing dome or a baffle within the mixing dome. The problem solved by Applicant's invention is very different, which helps highlight the non-trivial nature of the inventive mixing dome and baffle recited in claim 28. The Child reference is not within the art of thermostatic mixing valves, nor is it directed to problems or solutions that are in any way pertinent to the field of thermostatic mixing valves. Thus, Child should be disregarded as non-analogous art and the rejections in view of this reference should be withdrawn.

However, assuming that Child is still considered to be relevant, it fails as an anticipatory reference because it does not disclose every element of Applicant's claim 28. First, Child does not disclose an edge tapered into a housing. The sidewalls 58, 61 are convex curved surfaces that span the entire width of the rectangular housing 26, as best seen in the top view of Figure 6 in Child. Thus, Child does not have an edge, as required in Applicant's claim 28. Only the surface of the sidewalls 58, 61 taper toward the housing.

Second, as shown in Figure 4 of Child the wider end of the sidewalls are positioned toward the inlet 13, or upstream, while the tapered end is disposed toward the downstream end 32A. Even if the sidewall structure is regarded as having a tapered edge, the Child sidewalls still do not satisfy the limitations of amended claim 28 because the wide and tapered ends are exactly opposite what is required in that claim. Consequently, the Child reference cannot anticipate Applicant's claim 28. Moreover, there is no suggestion to modify Child as required to meet the limitations of this claim. To do so would clearly destroy the ability of the Child sidewalls to perform their appointed function as a sonic venturi to increase the flow velocity of the air-fuel mixture. As explained, Child fails to affect the patentability of Applicant's claims 28 and 31, because it is non-analogous and/or because it fails to disclose or suggest each limitation of Applicant's claims. Thus, the rejection in view of this reference should be withdrawn.

IV. Dependent Claims 29-31

The dependent claims benefit from the allowability of their parent claim 28. In addition, these claims are patentable on their own merits. Claims 30 and 31 were rejected as anticipated by Palm on the assumption that the wing-shaped mixing elements in Palm meet the limitations set forth in the claims. Claim 30 defines the baffle as having a surface area that is about one-half the cross sectional area of the housing. The wing-shaped mixing elements in Palm appear to have a cross-sectional area that equals or exceeds the cross sectional area of the housing. As can bee seen in Figures 6 of Palm, the wing-shaped element substantially fills the cross sectional area of the housing when viewed end-on. When viewed form the side, as in Figure 3, it appears that the element area is actually greater than the cross sectional area of the housing. At any rate, it is apparent that the Palm element has a surface area that is much greater than one-half of the housing area, which would be expected given that the Palm wing-shaped elements extend longitudinally along the length of the housing, as shown in Figure 3. The Palm reference does not disclose the limitation set forth in claim 30, nor would it have been obvious to modify the Palm wing-shaped element to meet this limitation.

It was also suggested that the wing-shaped element in Palm had a paisley shape. However, the Palm element does not have a paisley shape regardless of how it is viewed.

From every view, such as Figures 2 and 7, the element has the shape of an airfoil or wing. The element lacks the characteristic curved "tail" of the paisley shape, as best seen in Figure 5 of the present application. The Palm element cannot have a paisley shape because of its airfoil or wing nature and because the leading and trailing edges must span the entire diameter of the housing, as shown in the end views of Figures 5 and 6. Thus, the Palm reference fails to disclose or suggest the limitations of dependent claim 31.

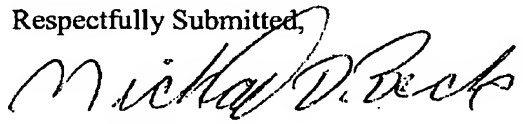
V. New Claims 32-34

New claims 32-34 depend from claim 28. Thus, these claims benefit from the allowability of their parent claim 28.

VI. Conclusion

Reconsideration of the present application is hereby requested. It is believed that the claim 28 distinguishes over the cited art, and that it, along with its original dependent claims 29-31 and new dependent claims 32-34, are in condition for allowance. Thus, this application is in condition for allowance, and action toward that end is earnestly solicited.

Respectfully Submitted,



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